

*On Object-slides of Canary Glass.* By PROFESSOR ERNST BRÜCKE.

The light of a clear blue sky is well known to be very unfavourable for microscopic investigations. It is evident that it is not only the small quantity of the reflected light, but also its composition, that produces the injurious effect. The continental microscopes are generally adapted for the white or slightly yellowish light which is reflected from clouds, and the English ones for the yellowish-red light of the gas-flame partially neutralized by cobalt glass. They are never arranged with special reference to the blue light of the sky, because in those countries where the microscope is principally used, a completely unclouded sky is not the rule, but the exception.

We also know that the contemplation of any colour which has a certain degree of intensity, and which is diffused over the whole field of vision, is wearying, and in time injurious, to the eye. This applies not only to red and yellow, but also, to a less extent, to blue and green. For this reason green spectacles have gone out of use, and the blue ones are always selected of a weak colour.

Lastly, the troublesome and injurious nature of the blue light of the sky for microscopists may also be attributed to a third cause. The ordinary pictures of our microscopic objects are shadow-pictures, which fall upon our retina. Their unity and distinctness must consequently be destroyed when light is emitted by the objects themselves. Oberhäuser, therefore, furnishes his microscopes with a paste-board screen, which is used when the low powers are employed with transmitted light, to keep off the direct light, in order that it may not be reflected from the object and thus reach the field of vision.

Now we know, from the investigations of Stokes and Helmholtz, that vegetable and animal tissues are not free from (true) internal dispersion; and although this is so small that it is not observed at all in the ordinary mixed sun-light, yet it is by no means impossible that it might sometimes have an injurious action upon the microscopic picture, when the rays of great refrangibility have acquired an unusual preponderance in the light falling on the object.

All these various circumstances indicate that in the blue light of the sky we should endeavour to weaken the strongly refractive rays in comparison with the less refractive. This may be effected by the insertion of a medium which exerts a strong absorption upon the violet end of the spectrum; but amongst such media, those which do not completely destroy the absorbed light, but, instead of it, emit rays of greater length of vibration, should be selected. One of the best of these media is canary-glass, and this must be particularly applicable to the purpose, as, according to the description of its optical properties given by Stokes, it will fulfil the above requisites, and it may be procured cheaply and without difficulty.

Experiments made with it completely fulfil these expectations. Object-slides of canary-glass considerably improve the blue light of the sky; and even when we have the light reflected from white clouds, in certain cases, the conditions of which are not yet ascertained, it is

pleasanter to work with them than with object-slides of common glass. The author's object-slides of canary-glass of medium colour are 2-3 millim. in thickness. The thicker ones are more serviceable than the thin ones, so that they may be employed with advantage of a thickness of 3-4 millim.—*Sitzungsber. der Akad. der Wiss. zu Wien*, xxi. p. 430.

*On two New Species of Humming Birds belonging to the genus Amazilius.* By JOHN GOULD, F.R.S., V.P.Z.S., etc.

AMAZILIUS CERVINIVENTRIS, Gould.

Head, all the upper surface and wing- and upper tail-coverts bronzy-green; wings purplish-brown; tail dark chestnut-red, each feather narrowly bordered and tipped with a bronzy lustre, which is of greatest extent and most conspicuous on the two centre tail-feathers; throat and chest luminous green; under surface of the shoulder and flanks dull green; abdomen and under tail-coverts fawn-colour; thighs white; upper mandible yellow at the base, merging into brown and tipped with black; under mandible pale yellow, except at the tip, which is black.

Total length, 4 inches; bill,  $\frac{1}{8}$ ; wing,  $2\frac{1}{4}$ ; tail,  $1\frac{5}{8}$ .

*Hab.* Cordova, in Mexico. Collected by M. Sallé.

*Remark.*—This species is about the size of *A. Riefferi*; but its bill is less robust; the wings, as in that species, are uniform purplish-brown; the chestnut colouring of the tail-feathers and the under tail-coverts is of a somewhat lighter hue.

AMAZILIUS CASTANEIVENTRIS, Gould.

Crown of the head, upper part of the back and shoulders reddish-bronze; rump and upper tail-coverts greyish, with a bronzy lustre; wings purplish-brown, with the exception of the basal portion of the primaries and secondaries, which are rufous; tail dark chestnut, tipped with a bronzy lustre, of greatest extent and most conspicuous on the centre feathers; throat, fore part of the neck, breast, and upper part of the abdomen shining golden-green; under surface of the shoulders, lower part of the abdomen and under tail-coverts fine chestnut-red; thighs white; upper mandible brownish-black; under mandible fleshy-yellow, except at the tip, which is brownish-black.

Total length,  $3\frac{1}{2}$  inches; bill,  $\frac{7}{8}$ ; wing,  $2\frac{1}{8}$ ; tail,  $1\frac{1}{4}$ .

*Hab.* Santa Fé de Bogota. From the Collection of Mr. Mark.

*Remark.*—This species differs from *A. cerviniventris* in the much greater depth of the chestnut colouring of the abdomen, under tail-coverts and tail; in size it is considerably less than that species, being even smaller than *A. Arsinov*, to which it offers an alliance in the colouring of its wings, but from which it differs in the colouring of its abdomen; the white feathers of the thighs are much developed and very conspicuous.—*Proc. Zool. Soc.* June 10, 1856.